Product Manual

TP-T6



TP-T6 Tethered Ground Power Station Operation Manual

1 Tethered Ground Power Station

1.1 System Introduction

Our TP-T6 portable ground station integrates the cable winch, tether cable, ground power supply and control circuit. It provides wired power and cable payout and rewind for tethered drones. The winch includes the system enclosure, main frame, cable storage reel and control circuit.

1.2 Main Technical Parameters

NO.	Item	Technical Parameter
1	System enclosure (L x W x H)	425 x 322 x 403 mm
2	Overall size with handles (L x W x H)	460 x 355 x 420 mm
3	Tether cable length	120 m
4	Weight	28 ± 0.5 kg
5	Input voltage	200–230 VAC, single-phase, 50 Hz (220 VAC nominal)
6	Maximum rewind speed	≤2 m/s
7	Cable operation	Passive payout / active rewind
8	Output voltage	750 VDC
9	Rated power	5 kW
10	Recommended onboard power	≤6 kW

Input is single-phase 200–230 VAC at 50 Hz, nominal 220 VAC. Rated power is 5 kW and output is 750 VDC. Recommended onboard power is ≤6 kW. Maximum rewind speed is ≤2 m/s.

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1.3 Instructions for Use

1.3.1 Tethering Box Panel

1）Main power circuit breaker: It serves as the main switch for all electrical components, including the control power supply of the tethering box and the main power for tethering;

2）Main power switch button: A switch button for supplying power to the aircraft's power system. After pressing it, the system's high-voltage direct current is energized, outputting a direct-current high voltage of 750V to supply power to the drone's on-board power supply;

3)Main power switch indicator light (integrated in the ring light of the main power switch button): It is used to indicate the power supply status of the tethering box;

4)Torque adjustment knob: It is used to control the magnitude of the wire-winding torque;

5)Transparent panel: It is used to visually observe the length status of the cable on the winch.

6)Information displayed on the liquid crystal screen:

- Output voltage: Displays the current DC voltage value output by the ground power supply
- Output current: Displays the current DC current value output by the ground power supply
- Output power: Displays the current output power value of the ground power supply
- Input voltage: Displays the AC input voltage. See the technical-parameter table for the input specification; the image below illustrates the display fields.



1.3.2 Wiring Instructions

1）Connect the mains power or the generator to the tethering box using the power cord provided in the assembly. Connect one end of the aviation plug directly to the aviation socket on the tethering box, and the other end can be directly connected to the mains power or the generator;



2）The high-voltage cable output of the tethering box is an XT90 connector. Connect the connecting cable to the on-board power supply of the drone as shown in the figure below, and secure the load-bearing hook properly (the pull wire of the load-bearing hook bears the force);





1.3.3 Operation Instructions

1)When starting the operation, first set the torque adjustment knob to the minimum level. Then, turn on the main circuit breaker to power on the system. At this point, the display screen on the display panel will light up;

2)When power needs to be supplied to the drone, press the “Main Power Switch” button. The cooling fan of the tethering box will start working, and the “Main Power in Operation” indicator light will stay on steadily. The display screen will show the current output voltage, current, and power of the main power supply through the cable. Once the system is under load and current flows, the indicator light will start to flash rhythmically, indicating that power is being supplied to the drone;

3)When the drone is about to take off, set the torque knob to the minimum or add a bit of torque if it's windy. Let the drone pull out the cable. When retracting the cable, adjust the torque knob gradually from a low to a high setting to synchronize with the drone's descending speed. Alternatively, you can set the appropriate torque from the start to keep the cable under constant tension. When the drone releases the cable, it can pull the cable out forcefully and hover. During landing, the cable will retract automatically due to the tension;

4) After completing the mission, switch off the high-voltage DC output before retracting the remaining cable. Switch off the equipment and unplug the power cord after retraction.

1.3.4 Precautions

1）Before using the equipment, make sure to place it on a level surface to keep it in a relatively balanced state;

2) Operators must wear insulated gloves.

3)When adjusting the speed control knob, turn it slowly from the minimum to the desired level. Avoid suddenly setting it to the maximum;

4)After finishing the cable retraction and extension operations, wind up the power cord and store it in the box. Do not drag it on the ground;

5)Avoid dragging the tethering cable on the ground during use to prevent it from fraying. Check the ground for stones or other sharp objects that could cut the cable.